

Overview of Statewide Land Use & Transportation Planning Tools Improvement Project Webinar: July 27th, 2011 (2-4 pm)

AGENDA

| <u>TOPIC</u> | <u>PRESENTER</u> | <u>TIME</u> |
|---|----------------------|----------------|
| 1. Welcome & Team Introductions | <i>Terry Parker</i> | <i>5 min.</i> |
| Introduction to Project | <i>Terry Parker</i> | <i>5 min.</i> |
| 2. Project Overview | <i>Jerry Walters</i> | <i>25 min.</i> |
| 3. Data Collection | <i>Nate Roth</i> | <i>20 min.</i> |
| 4. Application of Research & Data | <i>Raef Porter</i> | <i>20 min.</i> |
| 5. Next Steps: Tasks, timeframes | <i>Raef Porter</i> | <i>10 min.</i> |
| 6. Q & A (<i>submit via "chat" box</i>) | <i>Project Team</i> | <i>25 min.</i> |
| 7. Closing & follow-up | <i>Terry Parker</i> | <i>5 min.</i> |

Overview of
**Statewide Land Use & Transportation
Planning Tools Improvement Project**
Webinar: July 27th, 2011 (2-4 pm)

Introduce Presenters:

Terry Parker, Senior Planner, *Caltrans' Project
Coordinator - HQ Planning Div.*

Jerry Walters, *Principal - Fehr & Peers*

Nathaniel Roth, *GIS Programmer - UCD ULTRANS*

Raef Porter, *Senior Researcher - SACOG -
Overall Project Manager*

OVERVIEW of Presentation

1. **Goals & Objectives of Project** - *Terry Parker, Caltrans*
2. **Project Overview** – *Jerry Walters, Fehr & Peers*
 - *Relationship to other efforts*
 - *Need for land use/transportation planning tools*
 - *“State of the practice” re: data and analysis*
 - *Areas selected for inclusion*
3. **Collection & Reporting of detailed Land Use & Transportation Data** – *Nathaniel Roth, UC Davis*
4. **Applying Data Collection & Research Conducted** – *Raef Porter, SACOG*
5. **Overview of Tasks & Schedule** – *Raef Porter, SACOG*
6. **Q & A** – *submit questions via “chat box” during webinar*

1. Project Goals

- Caltrans has provided \$1.152 million in funding (fed & state)
- Develop and demonstrate improved software “planning tools” using available land use and transportation data, which the project Team will collect and analyze for 8 areas in California.
- Agencies (etc.) can use data and tools* to help develop and evaluate integrated land use/ transportation plans, programs & projects, e.g.:
 - *Regional Transportation Plans (RTPs)*
 - *Sustainable Communities Strategies (SCS)*
 - *Local General and Specific Community Plans;*
 - *Proposed land use projects*
- Data & tools will be useful in other planning efforts.

* *Voluntary use, not a “standard or requirement.”*

Project Goals

Improve & Demonstrate Planning Tools:

- **GIS-based analysis tools – e.g. iPLACE3s, UPLAN**
Used in California to: gather and display input during public meetings; develop and evaluate land use-transportation “scenarios” for local & regional plans.
- **“Post-processing” spreadsheet** –*used with available travel demand models to analyze and compare land use/transportation “scenarios” re: selected performance metrics. Will be demonstrated in one county within eight “focus” areas during this study.*

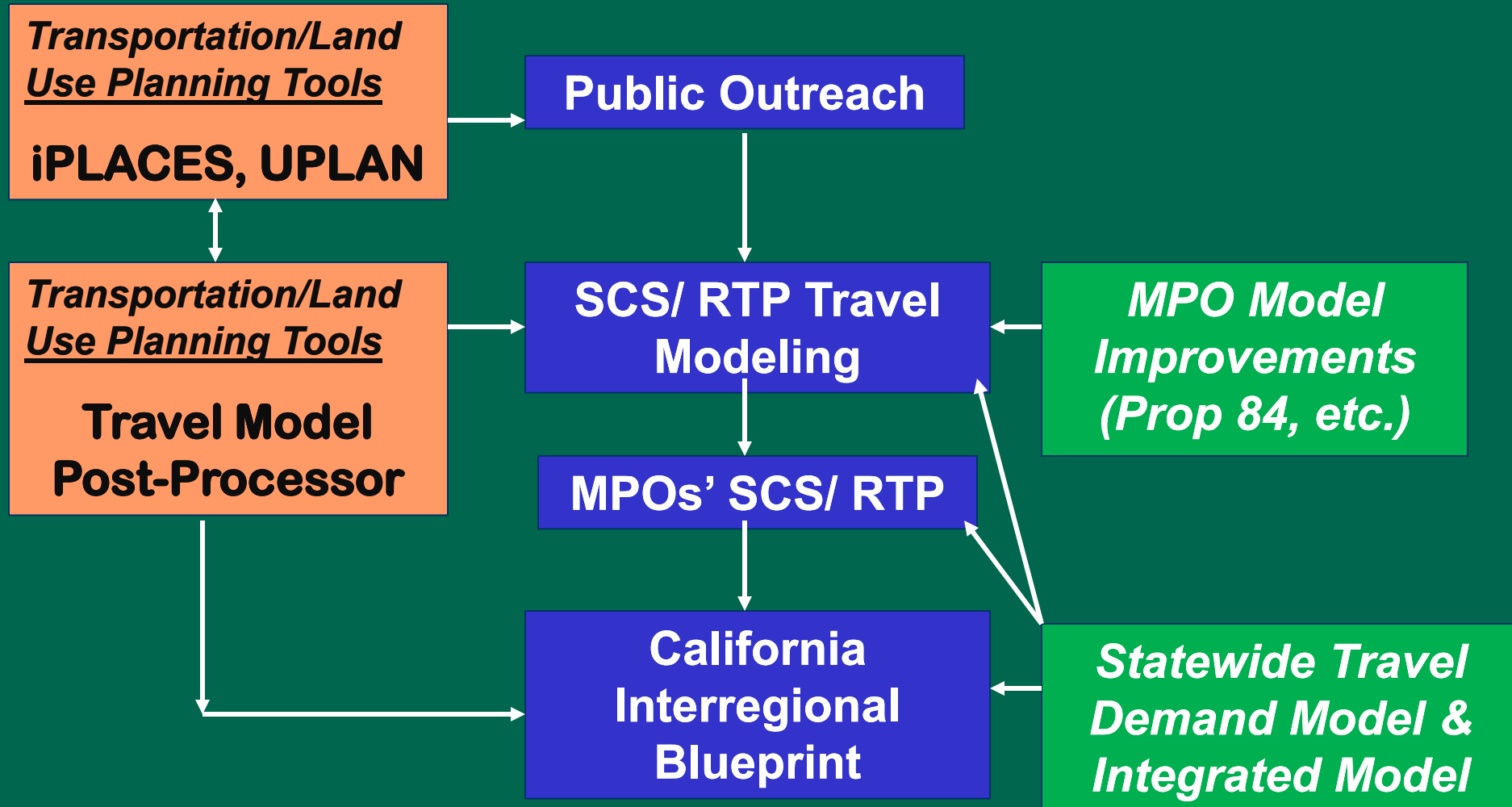
2. Overview of Project

Jerry Walters, Principal, Fehr & Peers
Consultants (Subcontractor to SACOG)

Responsible for:

- *Statistical analysis of land use and travel data to determine regional relationships.*
- *Developing and demonstrating travel model post-processors in 8 regions.*
- *Meetings of “Experts” & “Practitioners” Panels.*

Relationship of this Project to Other Efforts



Other Efforts (cont.)

Final Report



ASSESSMENT OF LOCAL MODELS AND TOOLS FOR ANALYZING SMART-GROWTH STRATEGIES

PREPARED FOR THE
CALIFORNIA DEPARTMENT OF TRANSPORTATION



PREPARED BY
DKS Associates
TRANSPORTATION SOLUTIONS

UNIVERSITY OF CALIFORNIA, IRVINE
UNIVERSITY OF CALIFORNIA, SANTA BARBARA
UTAH STATE UNIVERSITY

JULY 2007

2007 Study for Caltrans

2010 California Regional Transportation Plan Guidelines



CTC's 2010 revised RTP Guidelines

MPO Planning Tools

SB 375 – “RTAC” Report



RECOMMENDATIONS OF THE
REGIONAL TARGETS ADVISORY
COMMITTEE (RTAC) PURSUANT
TO SENATE BILL 375

A Report to the California Air Resources Board

California Transportation Commission



TRIP GENERATION FOR SMART GROWTH

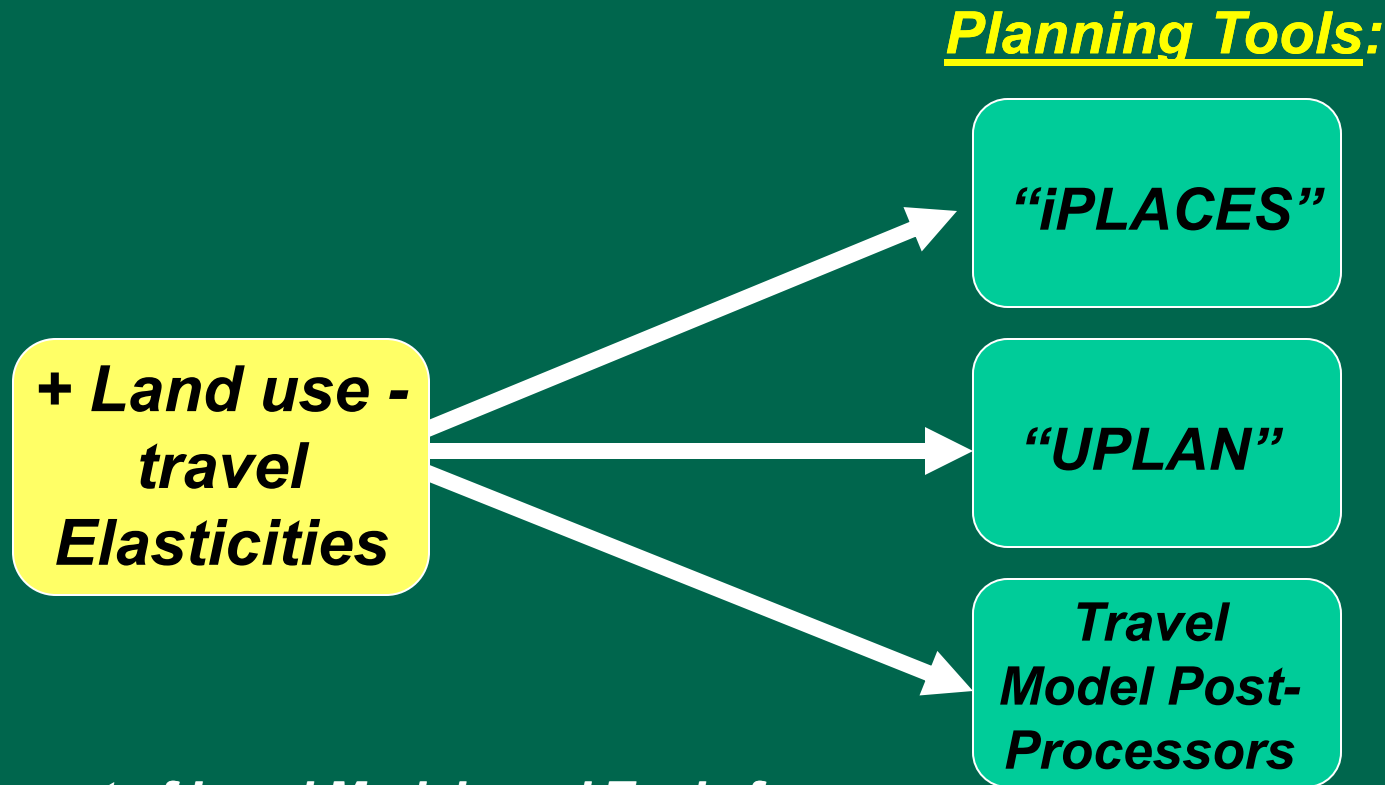
PLANNING TOOLS FOR THE SAN DIEGO REGION

June 2010



2007 Study* Recommendation:

Apply land use/travel relationships (“Ds”) to compensate for lack of smart growth sensitivity in planning tools and models.



* ***"Assessment of Local Models and Tools for Analyzing Smart-Growth Strategies"*** DKS Assoc. et.al. – for Caltrans, 2007.

http://www.dot.ca.gov/hq/research/researchreports/reports/2007/assessment_local_models_tools_growth_strategies.pdf

*Land use factors found to influence travel:**

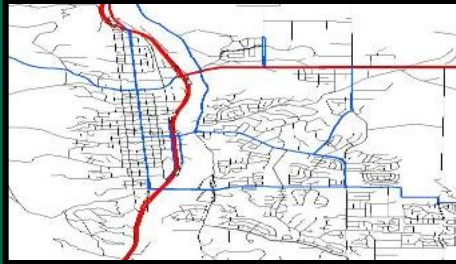
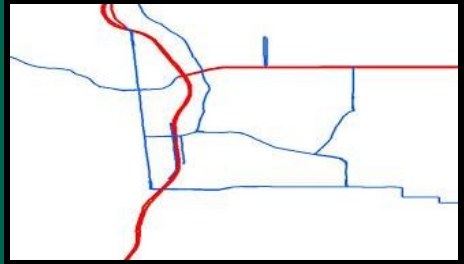


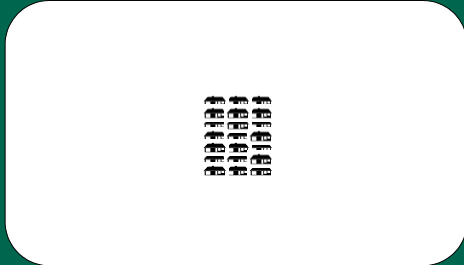
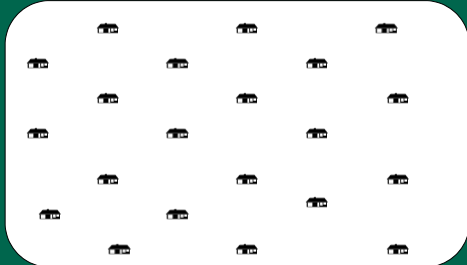


- Density** - dwellings, jobs per acre
- Diversity** - mix of housing, jobs, retail
- Design** - connectivity, walkability
- Destinations** - regional accessibility
- Distance to Transit** - bus, rail
- Development Scale** - population, jobs
- Demographics** - household size, income, age (etc.)

** in many studies.*

Why these factors are needed –
















Typical Transportation Model “Blind Spots”

| | <i>Reality</i> | <u>Model's View</u> |
|-----------------------|--|---|
| • Circulation Network |  |  |
| • Walking Environment |  |  |
| • Density, Clustering |  |  |

Travel model sensitivity to land use/transportation factors:





















MPOs' Self-Assessment survey *conducted in 2009*

KEY:

| KEY | Policy Not Applicable in Region | No Capacity to Model Factor | Sensitivity Unknown/Untested | Limited Sensitivity to Factor | Reasonable Sensitivity to Factor |
|-------------------------------|---|---|---|---|---|
| No Planned Improvement |  |  |  |  |  |
| Improvement Planned |  |  |  |  |  |
| Improvement Under Development |  |  |  |  |  |

Travel model sensitivity to land use/transportation factors:

Major Metro MPOs in California*

| | Macro Scale | | <i>Micro Scale</i> | | |
|----------|---|--|---|---|---|
| | Location | Mix | Density | Mix | Ped Env |
| SCAG |  |  |  |  |  |
| MTC/ABAG |  |  |  |  |  |
| SANDAG |  |  |  |  |  |
| SACOG |  |  |  |  |  |

** According to survey in 2009.*

Other Areas:

MACRO-Scale

MICRO-Scale

Location

Mix

Density

Mix

Ped Env

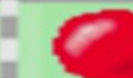
FRESNO COG



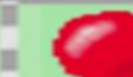
KERN COG



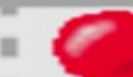
AMBAG



SJ COG



STAN COG



TULARE CAG



SBCAG



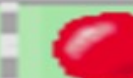
SLO COG



MERCED CAG



BUTTE CAG



SHASTA CO.
RTPA



KING CAG



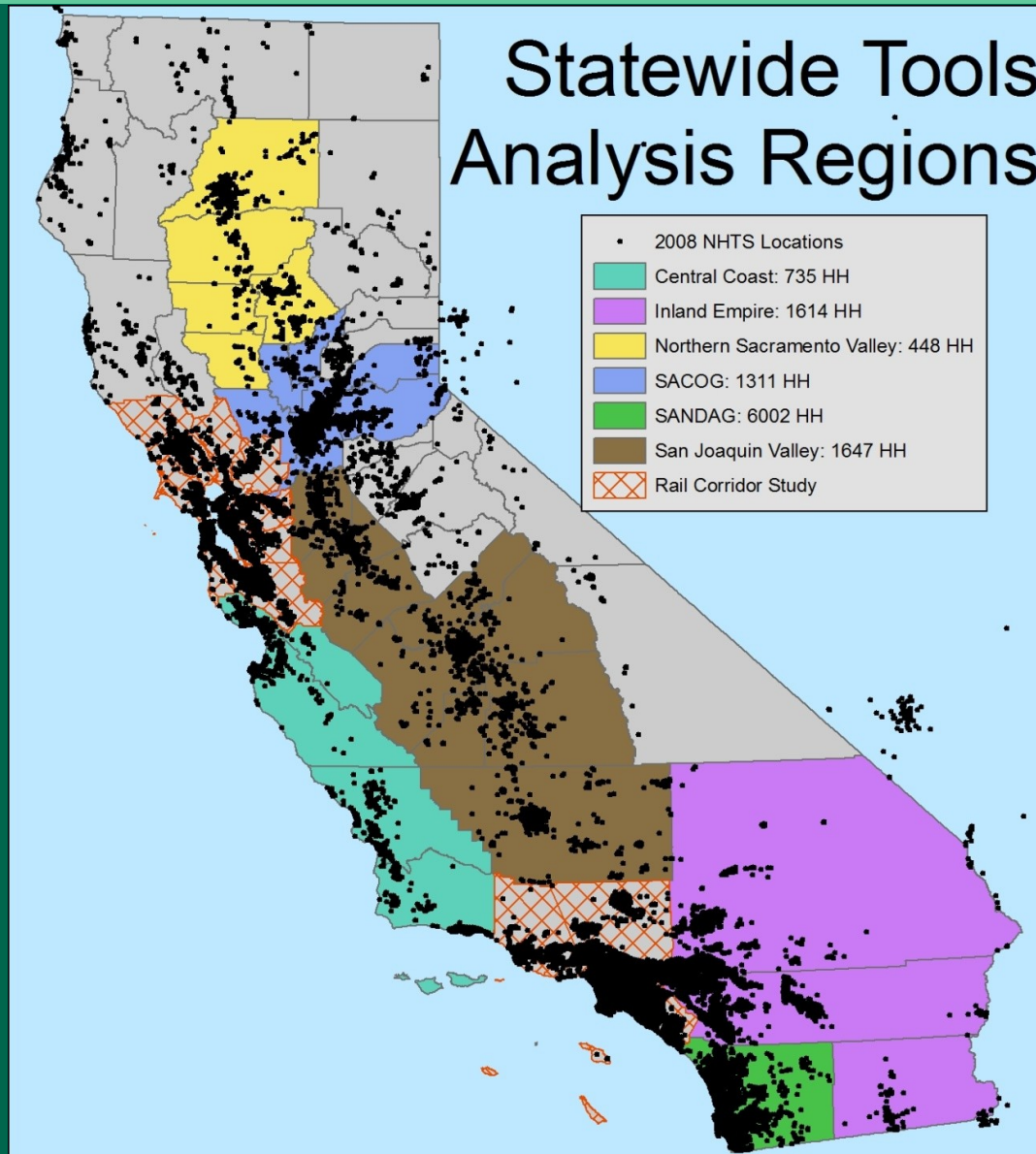
MADERA CTC



This Study: Areas Included

- UCD's ULTRANS and Fehr & Peers reviewed available land use, transportation, and travel survey data in areas throughout California.
- ***Eight representative areas were identified with the necessary data “ingredients” -***
 - (1) Available land use & transportation data (in GIS) and travel survey data of sufficient detail & quality;
 - (2) that was collected during roughly the same time period(s) for each area.

Selected “Focus” Areas of Study



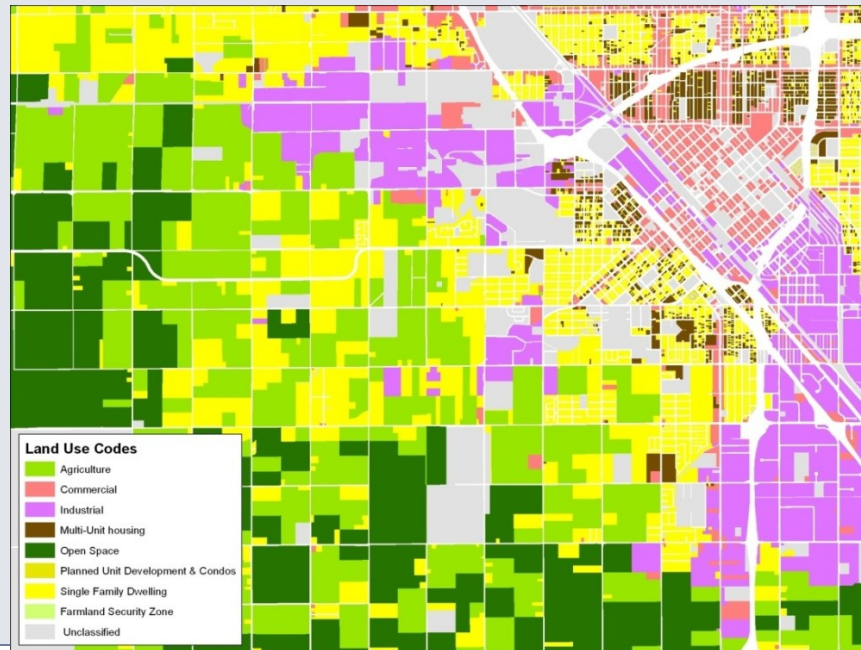
Selected “Focus” Areas

| <u>Area Type</u> | <u>Areas</u> | <u>Post-Processor Demonstrations</u> |
|--|---|--------------------------------------|
| Major MPO - <i>North</i> | <i>Sacramento region</i> | SACOG |
| Major MPO – <i>South</i> | <i>San Diego region</i> | SANDAG |
| Major passenger rail corridors (<i>only</i>) | <i>S.F. Bay Area & Southern Calif.</i> | Specific corridors (<i>tbd</i>) |
| San Joaquin Valley <i>North-Central</i> | <i>Eight Valley Counties</i> | Fresno COG |
| SJ Valley <i>South</i> | | Kern COG |
| Urban Growth Area | <i>Inland Empire & Imperial County</i> | Riverside Co. |
| Central Coast | <i>Santa Barbara, SLO, Monterey, Santa Cruz</i> | San Luis Obispo COG |
| No. Sac Valley (<i>rural</i>) | <i>Shasta, Butte, ...</i> | Butte CAG |

Section 3. Overview of Data Collection

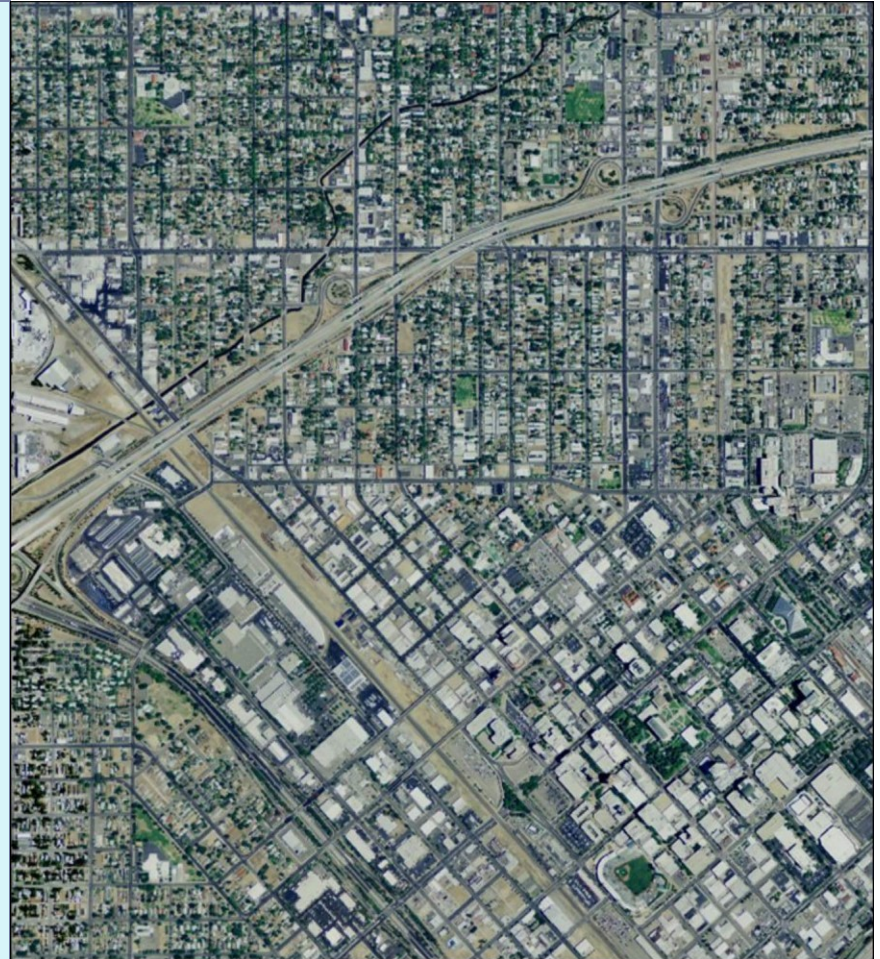
*Identifying, collecting, and preparing
available GIS & Travel data*

► **Nathaniel Roth, UC Davis ULTRANS**



Data Collection & Preparation

- **Select “focus” Regions**
- **Travel survey data**
- **Land Use data**
 - ▶ *Parcels*
 - ▶ *Land Use*
- **Schools**
- **Roads, Blocks & Intersections**
- **Transit Stops**
- ***Summarization***



Important Data Considerations:

▶ Availability

- ▶ Parcel land use codes
- ▶ Transit stops

▶ Time frame

- ▶ All data must align temporally with the travel survey

▶ Suitability

- ▶ Employment & Housing

▶ Accuracy

- ▶ Employment
- ▶ Land use codes

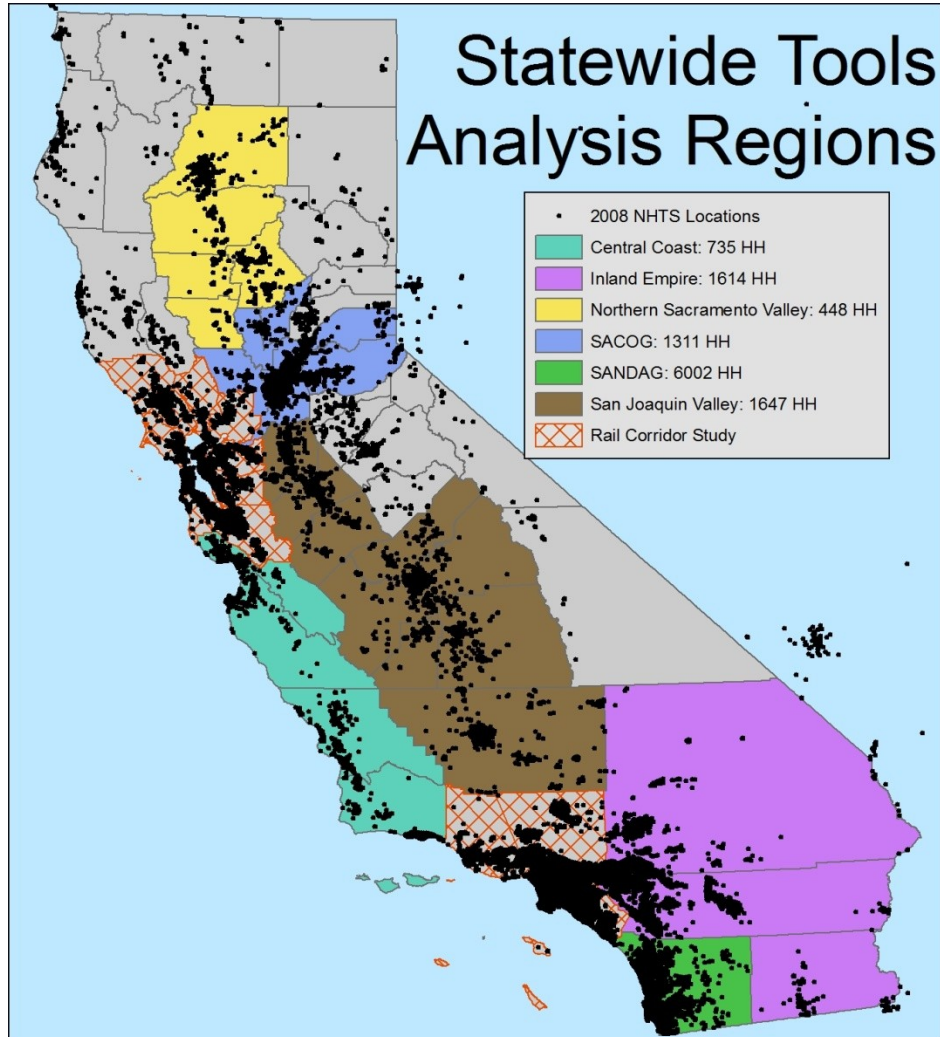
▶ Consistency

- ▶ Parcel land use codes

▶ Processing methods

- ▶ Disaggregation
- ▶ Spatial processing
- ▶ Summarization

2008-09 National Household Travel Survey



***“NHTS” Collected May
2008 - March 2009***

- ▶ ***California ‘Add-on’
increased total sample size***
- ▶ **Better spatial location
information than the 2001
Statewide travel survey**
- ▶ **Also better supporting data
available for NHTS**
- ▶ ***However, less data is
available in rural areas***

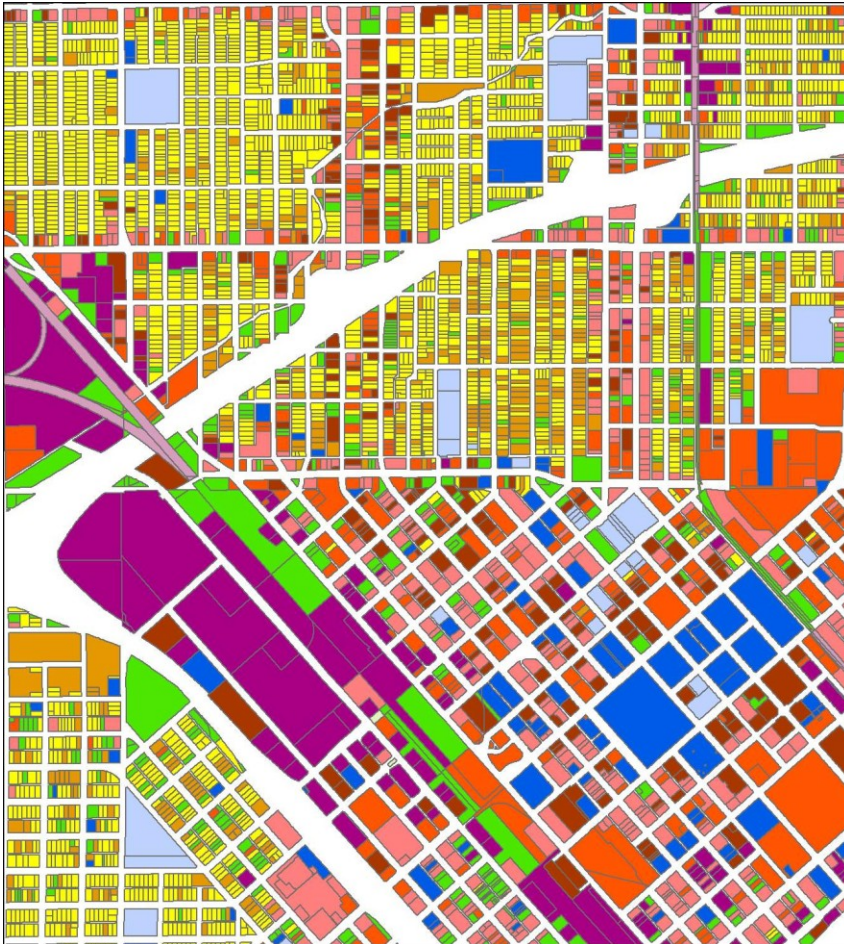
Land Use Data

- ▶ **Data Sources:**
 - ▶ *Parcels*
 - ▶ *2005-2009 ACS**
 - ▶ *2008 “OnTheMap4”*
 - ▶ *(Census data)*
 - ▶ *Local Datasets*
 - ▶ *Local Travel model*
- ▶ **Disaggregation**

***ACS=American Community Survey**

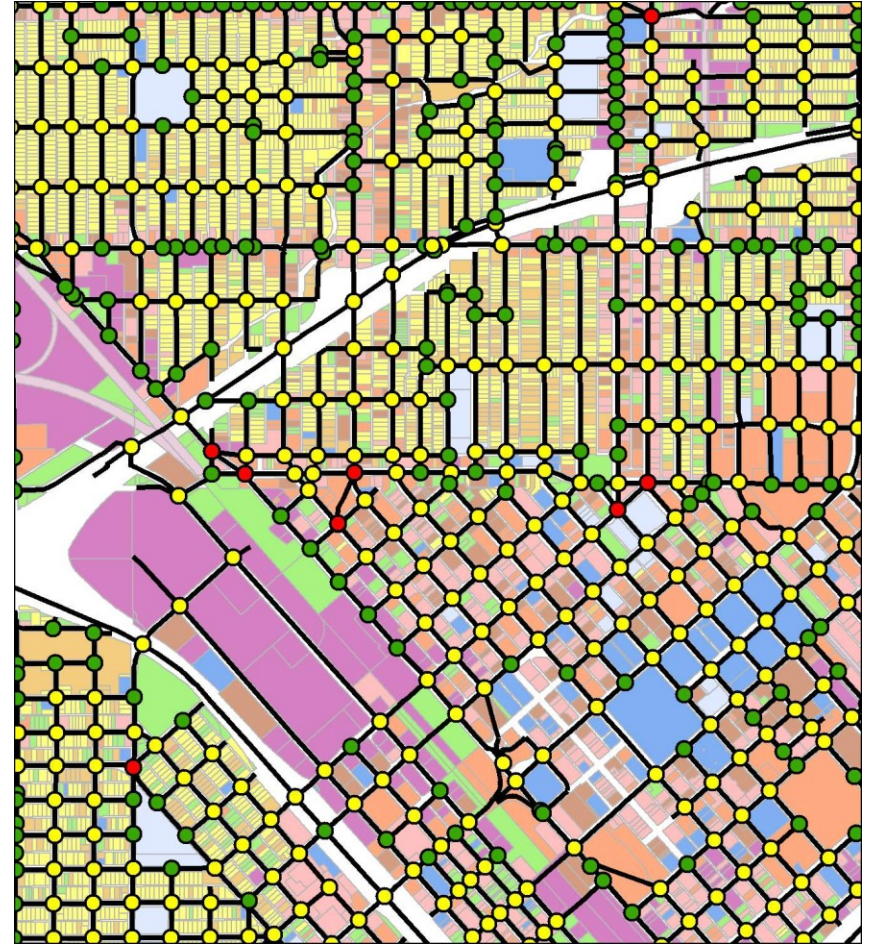
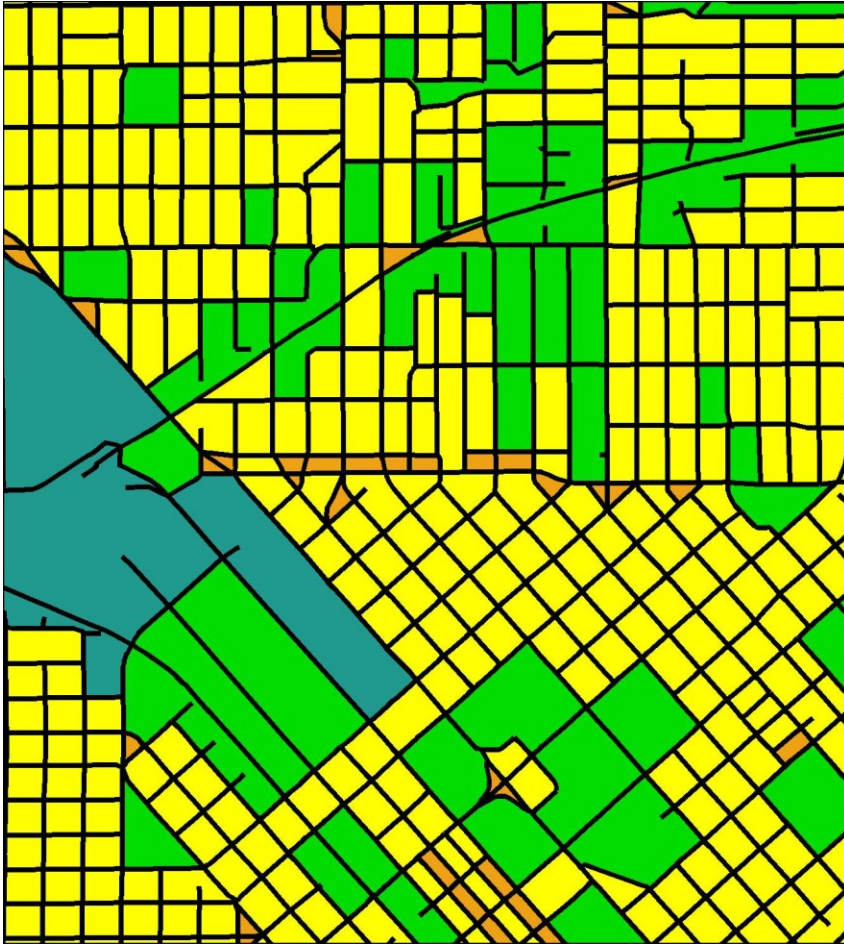


Parcel Data

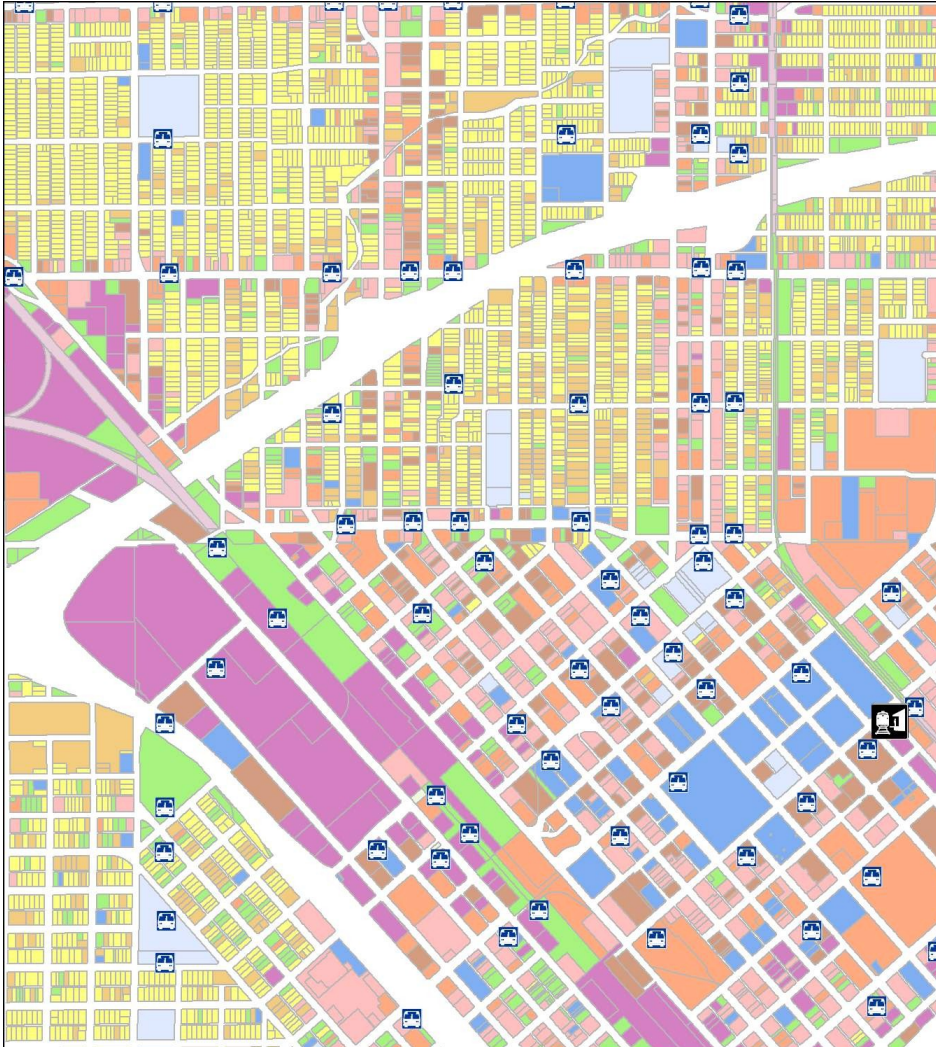


- ▶ **Parcel Data Issues:**
 - ▶ *Availability*
 - ▶ *Land use coding*
 - ▶ *Quality*
 - ▶ *Geometry*
 - ▶ *Privacy*
- ▶ **Needed to “Crosswalk” Land Use Codes –**
 - *for “naming” consistency among jurisdictions*

Roads, Blocks & Intersections



Transit Stop Locations



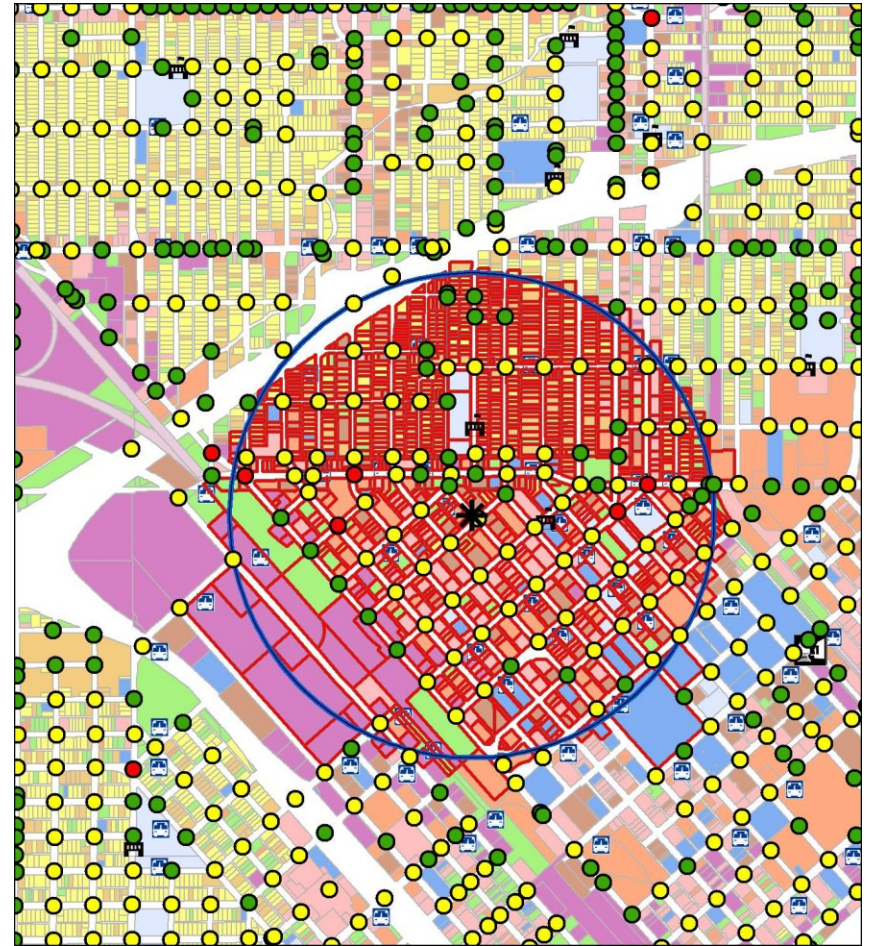
► **Bus**

- *All stops (where possible)*
- *Timed stops (where available)*

► **Passenger Rail**

- *E.g., Amtrak, Metrolink (etc.)*

Summarization of Data – *within 1/2-mile of all travel survey “trip ends”*



e.g., Data for Area within each circle:

- ▶ Acres of **Retail**: 49.2
- ▶ Acres of **Service**: 52.7
- ▶ Acres of **Office**: 32.8
- ▶ Acres of **Institutional**: 34.1
- ▶ Acres of **Schools**: 14.8
- ▶ Acres of **Industrial**: 76.2
- ▶ Acres of **Single Family Dwellings**: 59.8
- ▶ Acres of **Multi-Family Dwellings**: 32.1
- ▶ **Distance to transit**: 87 meters
- ▶ **Distance to elementary school**: 300 meters
- ▶ **Total elementary school enrollment**: 436 students

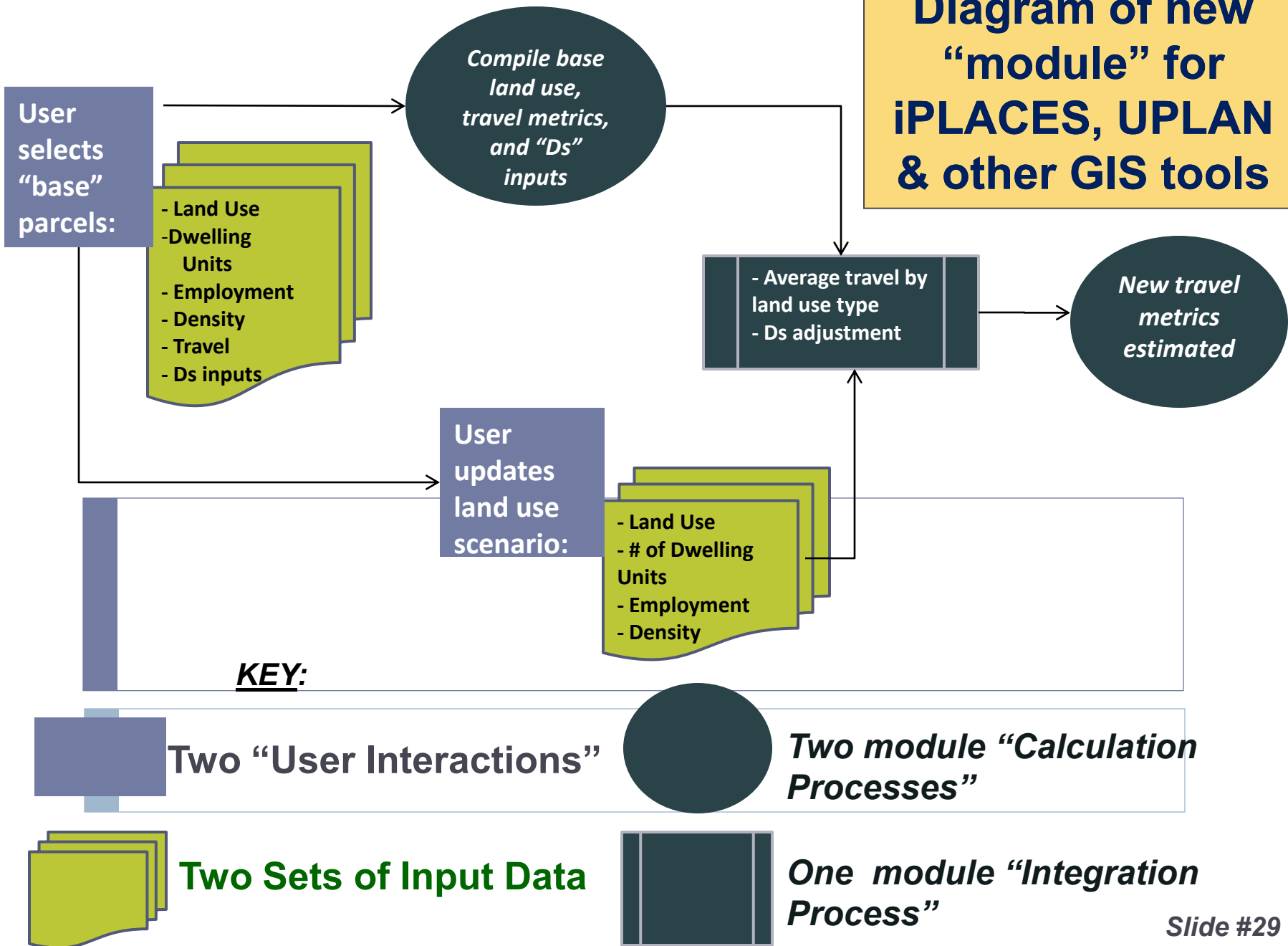
- ▶ # Employees - **Retail**: 374
- ▶ # Employees - **Service**: 5711
- ▶ # Employees - **Office**: 751
- ▶ # Employees - **Institutional**: 31
- ▶ # Employees - **Schools**: 754.5
- ▶ # Employees - **Industrial**: 704

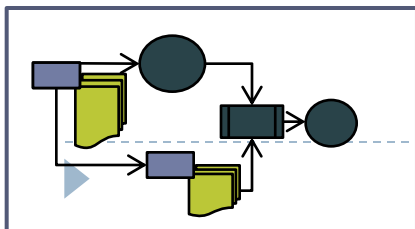
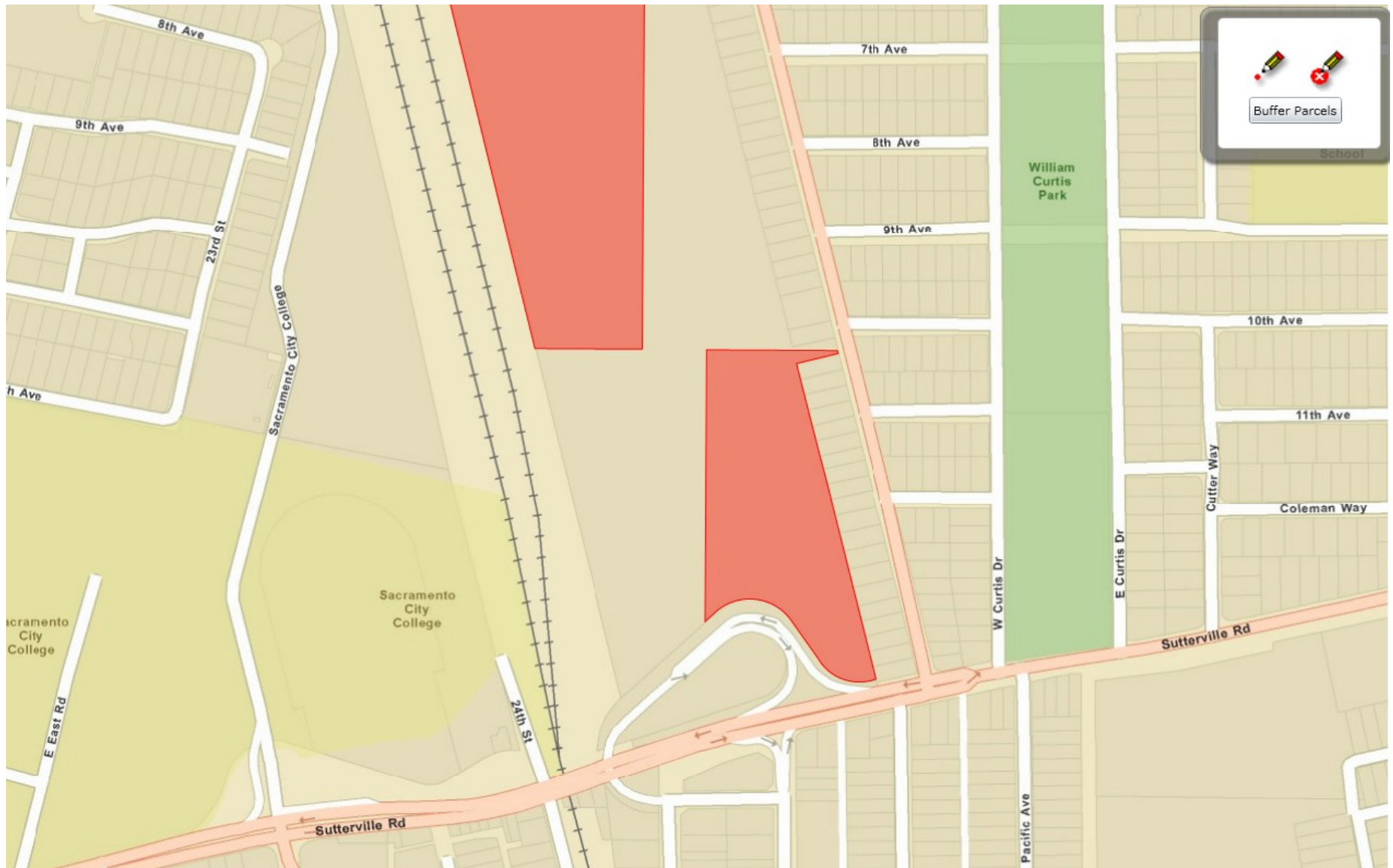
- ▶ **# of Single Family Dwellings**: 542
- ▶ **# of Multi-Family Dwellings**: 1,525
- ▶ **Population**: 8,100 people
- ▶ **# of Intersections**: 108/74
- ▶ **Average Block Size**: 6.1 acres

***4. Example of HOW DATA IS APPLIED:
Overview of Smart Growth “Module”
for GIS Planning/Visualization Tools
(e.g., iPLACES, UPLAN)***

Raef Porter, Project Manager
***Sacramento Area Council of
Governments (SACOG)***

**Diagram of new
“module” for
iPLACES, UPLAN
& other GIS tools**





Step 1: “Buffer” area around selected parcels:

- ✓ User selects Parcels
- ✓ Module “Buffers” parcels within ¼ mile

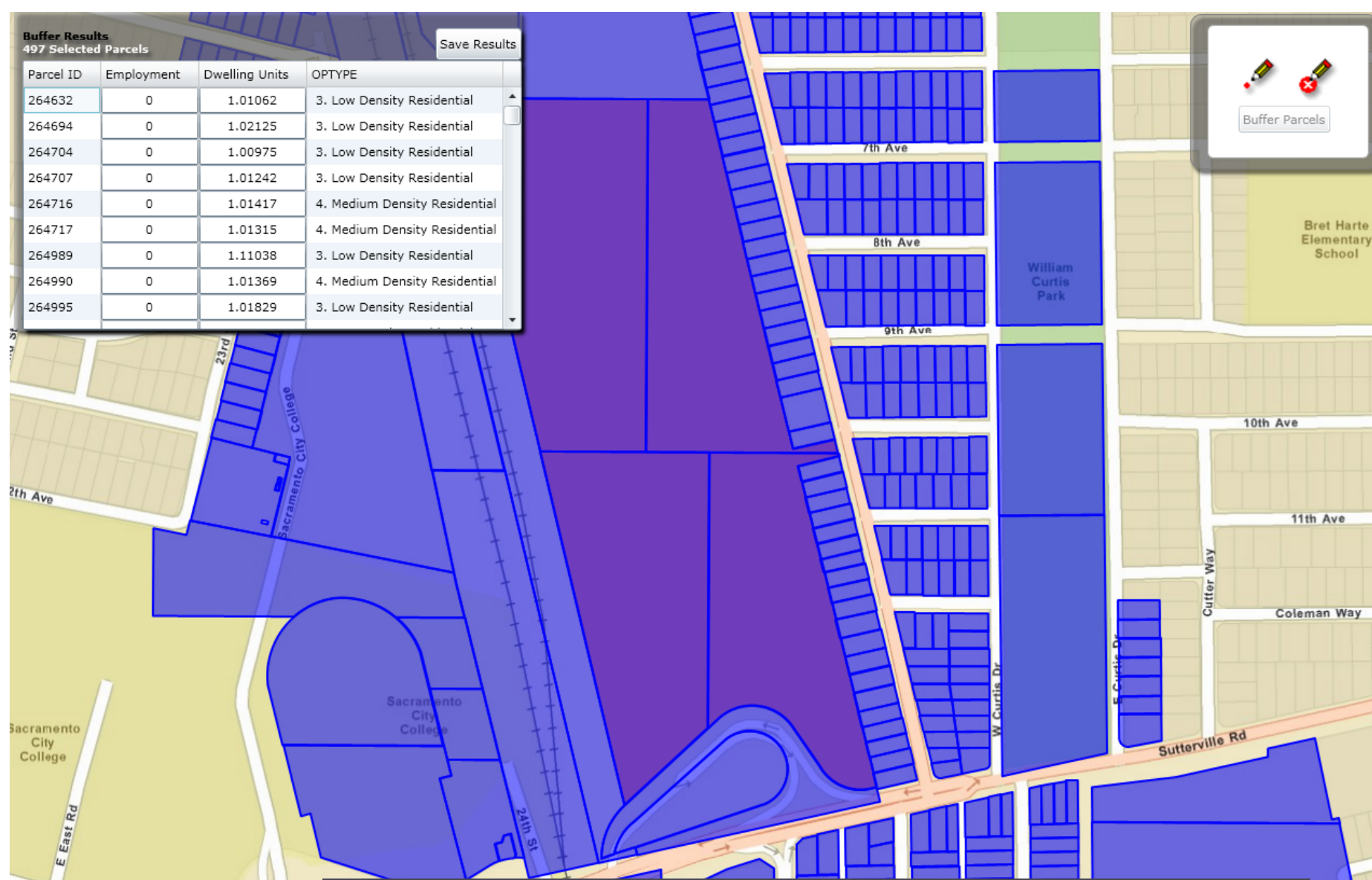
Buffer Results
497 Selected Parcels

Save Results

| Parcel ID | Employment | Dwelling Units | OPTYPE |
|-----------|------------|----------------|-------------------------------|
| 264632 | 0 | 1.01062 | 3. Low Density Residential |
| 264694 | 0 | 1.02125 | 3. Low Density Residential |
| 264704 | 0 | 1.00975 | 3. Low Density Residential |
| 264707 | 0 | 1.01242 | 3. Low Density Residential |
| 264716 | 0 | 1.01417 | 4. Medium Density Residential |
| 264717 | 0 | 1.01315 | 4. Medium Density Residential |
| 264989 | 0 | 1.11038 | 3. Low Density Residential |
| 264990 | 0 | 1.01369 | 4. Medium Density Residential |
| 264995 | 0 | 1.01829 | 3. Low Density Residential |

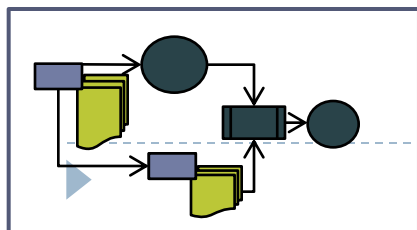


Buffer Parcels



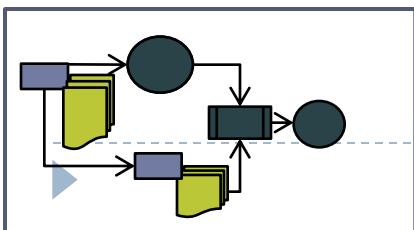
Step 2: Input alternative “Scenario(s)” -

- ✓ User edits land use inputs for each Scenario
- ✓ Module exports land use data



| contextavg | 246,753 | 6,464 | 47,294 | ##### | 84,499 | | 28.9 | 40,645 | | 7.3 | 188,019.0 | | | | | | | |
|---------------------------------|---|---------|--------|-------|--------|----------|---------|---|-------|---------|-----------|------|-----|-----------|------------------|--------|----------|----------|
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21.0 | 22.0 | 23 | | |
| | HH-Generated Person Trips, Tallied to Res End | | | | | | | HH-Generated Work Travel, Tallied to Work End | | | | | | | Rates and Shares | | | |
| Optype | Total | Transit | Bike | Walk | HOV | Veh Trij | HHGen | VTM | Total | Transit | Bike | Walk | HOV | Veh Trips | HHGen | Wrk VI | HHPop/HH | Res VMT/ |
| A. Rural Residential* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| M. MEDIUM-DENSITY MIXED USE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| N. HIGH-DENSITY MIXED RES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| O. LOW DENSITY MIXED-USE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| P. MEDIUM DENSITY MIXED USE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| Q. HIGH-DENSITY MIXED USE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| R. EMPLOYMENT FOCUS MIX | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 1. Rural Residential | 530 | 8 | 62 | 24 | 207 | 0 | 2,123 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 42.5 | |
| 1A. Farm Home | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 2. Very Low Density Residential | 14,807 | 333 | 2,512 | 1,125 | 5,021 | 0 | 42,949 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.9 | 32.7 | |
| 3. Low Density Residential | 103,430 | 2,381 | 18,042 | 7,724 | 34,582 | 0 | 307,309 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 33.8 | |
| 31. FUTURE GROWTH AREA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 32. NEW AREA EMP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 33. MAJOR (ININTER) URBAN C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 33. NEW AREA MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 34. NEW AREA SF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 35. ROADS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 36. URBAN RESERVE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 37. WATER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 4. Medium Density Residential | 46,572 | 1,156 | 8,181 | 3,854 | 15,258 | 0 | 136,485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 33.0 | |
| 47. AGRICULTURAL RESIDENT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 5. Medium-High Density Reside | 53,053 | 1,371 | 10,183 | 4,624 | 16,726 | 0 | 143,300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 30.6 | |
| 6. High Density Residential | 25,226 | 801 | 5,290 | 2,457 | 7,610 | 0 | 60,082 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.7 | 26.7 | |
| 7. Urban Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 8. High-Intensity Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 9. Moderate-Intensity Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| ADDITIONAL URBAN RESERV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| CSUS HOUSING TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| JACKSON HWY 2- MORE LDR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| MHDR CNCO BLEND FOR COF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| NATOMAS JOINT VISION | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| PARK AND/OR OPEN SPACE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| PARKING LOT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| RETAIL TEST (OLD CRET) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 10. Community/Neighborhood Re | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | - | |
| 11. Regional Retail | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,062 | 15 | 327 | 0 | 0 | 0 | 656 | 5,908 | 0.0 | - | |
| 12. Light Industrial - Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 466 | 1 | 140 | 0 | 0 | 0 | 307 | 3,521 | 0.0 | - | |

Step 3: Analyze “Scenarios” - The Module averages travel metrics by land use category from the buffered “base case” context area, and then applies metrics to the new “Scenario” study area parcels.




Transit Service

☒ Low

☐ Moderate

☐ High



Step 4: Transportation Characteristics
 - for the existing “base case” and the new “alternative” scenarios:

✓ *User selects the applicable level of Transit Service...*

✓ *and the Street Pattern(s)*

Street Connectivity

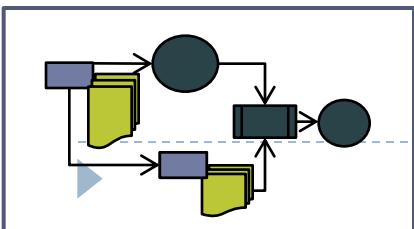
☒ Low

☐ Moderate

☐ High



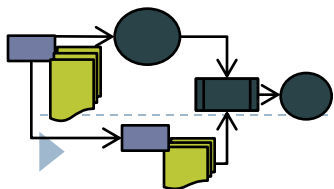
Next ==>>



Development Area Totals

| Development Area Totals | | | | | | | | | | Residential-End Tallies (all HHGen Travel, tallied to "home" end) | | | | | | | | | |
|---------------------------------------|-----------|-------------|-----------|----------|-----------|------|------------|--------|---------|---|------------|------------|---------|-------|------|--|--|--|--|
| From IPLACE3S | | | | | | | | | | Computed Rates | | | | | | | | | |
| 62 77 100% 2 142 2,003 2,089 | | | | | | | | | | 6 42.5 15.2 10.6 0.0 3.8 0.0 0.1 | | | | | | | | | |
| 0% | | | | | | | | | | | | | | | | | | | |
| | Net Acres | Gross Acres | Dwellings | Ret Jobs | Nret Jobs | Emps | Population | VMT/HH | VMT/Cap | P-Trips/HH | V-Trips/HH | P-Trips/Ca | Res Trm | % Res | Bk % | | | | |
| 1 A. Rural Residential* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 2 M. MEDIUM-DENSITY MIXED RESID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 3 N. HIGH-DENSITY MIXED RESIDEN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 4 O. LOW DENSITY MIXED-USE CEN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 5 P. MEDIUM DENSITY MIXED USE C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 6 Q. HIGH-DENSITY MIXED USE CEN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 7 R. EMPLOYMENT FOCUS MIXED U | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 8 1. Rural Residential | 2.34 | 2.34 | 2 | 0 | 0 | 0 | 6 | 42.5 | 15.2 | 10.6 | 0.0 | 3.8 | 1.5% | 11.7% | | | | | |
| 9 1A. Farm Home | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 10 2. Very Low Density Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 11 3. Low Density Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 12 31. FUTURE GROWTH AREA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 13 32. NEW AREA EMP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 14 33. MAJOR (INNER) URBAN CENTE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 15 33. NEW AREA MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 16 34. NEW AREA SF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 17 35. ROADS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 18 36. URBAN RESERVE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 19 37. WATER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 20 4. Medium Density Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 21 47. AGRICULTURAL RESIDENTIAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 22 5. Medium-High Density Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 23 6. High Density Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 24 7. Urban Residential | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 25 8. High-Intensity Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 26 9. Moderate-Intensity Office | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 27 ADDITIONAL URBAN RESERVE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 28 CSUS HOUSING TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 29 JACKSON HWY 2- MORE LDR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 30 MHDR CNCO BLEND FOR CORRIDO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 31 NATOMAS JOINT VISION | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 32 PARK AND/OR OPEN SPACE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 33 PARKING LOT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 34 RETAIL TEST (OLD CRET) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 35 10. Community/Neighborhood Retail | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 36 11. Regional Retail | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |
| 37 12. Light Industrial - Office | 59.73 | 75 | 0 | 0 | 0 | 2089 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0% | 0.0% | | | | |

The Module then averages the User-created "Scenario" data with context base case data, & adjusts it with "Ds"



| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------|------|-------|----|---------|------|------|---|
| "Elasticity" | | | | | | | |
| Diversity/Mix | Opt | VMT | VT | TrmTrip | Bike | Walk | |
| Ret per DU | 0.25 | -0.05 | 0 | 0 | 0.05 | 0.05 | |
| J/H | 1.2 | -0.05 | 0 | 0 | 0 | 0 | |
| K12 per DU | 0.5 | -0.05 | 0 | 0 | 0.05 | 0.05 | |

| | | | | | | | |
|---------|-----|-------|---|------|------|------|--|
| Density | | | | | | | |
| Both | n/a | -0.03 | 0 | 0.05 | 0.05 | 0.05 | |

Internalization of Trips--Adjustments to VMT

| Gross Area | Base Int | % Retail | |
|------------|----------|----------|-----|
| 0 | 1.00 | 0 | 2 |
| 50 | 1.00 | 0.3 | 2 |
| 100 | 1.00 | 0.4 | 2.2 |
| 200 | 1.00 | 0.5 | 2.5 |
| 500 | 1.00 | 0.6 | 2.8 |
| 1500 | 1.00 | 0.7 | 3 |
| 5000 | 1.00 | 0.8 | 3.3 |
| 20000 | 1.00 | 0.9 | 3.5 |
| 100000 | 1.00 | 1 | 4 |

| | | | |
|----------------|--------|---------|----------|
| Transit Access | | | |
| Context... | 1(low) | 2 (med) | 3 (high) |
| Low | 0 | 0.05 | 0.1 |
| Moderate | -0.05 | 0 | 0.05 |
| High | -0.1 | -0.05 | 0 |

| | | | |
|----------------|------------|---------|----------|
| Bike/Walk Adj | | | |
| Street Pattern | Project... | | |
| Context... | 1(low) | 2 (med) | 3 (high) |
| Low | 0 | 0.05 | 0.1 |
| Moderate | -0.05 | 0 | 0.05 |
| High | -0.1 | -0.05 | 0 |

Table 1. Project Description and Base Rates

| | Proj Desc | | | | | | Base Travel Rates | | | |
|--------------|-----------|---------------------------|--------------------------------|----------|--------------|------------|-------------------|----------------|----------------|-------------------|
| | DU's | % Low or Very Low Density | % High Density or Mixed OPType | Ret Jobs | Non-Ret Jobs | Total Jobs | Res VMT/DU | Res Bike Share | Res Walk Share | Res Transit Share |
| SACOG2 | 2 | 100% | 0% | 142 | 2,003 | 0 | 42.5 | 11.7% | 4.5% | 1.5% |
| Context Area | 22,968 | 46% | 10% | 2,279 | 23,641 | 25,920 | 28.9 | 17.3% | 7.8% | 2.4% |

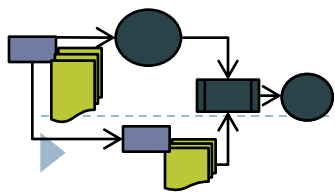
Table 2. Context Evaluation

| | Context Eval | | | | | | | | |
|-------------------|----------------------|-------------|-----------------|-------------|--|------------------------|-------------------------|----------------------|------------------------|
| | Mixed Use | | | | Density | | Transit Service | Ped/Bike Environment | |
| | Project Ret Job / DU | Proj Change | Project J/H Bal | Proj Change | Proj Total Density (DU+Jobs)/Net Acres | Proj Diff from Context | Access at Proj Location | Project | Proj Diff from Context |
| Scenario | | | | | | | | | |
| SACOG2 | 71.000 | Impr | 1,044.50 | Impr | 27.04 | Higher | Low | High | Impr |
| Context Area Avg: | 0.094 | | 1.13 | | 17.63 | | Moderate | Low | |
| Target: | 0.250 | | 1.2 | | n/a | | n/a | n/a | |
| Context Status: | Low | | Low | | n/a | | n/a | n/a | |

Table 3. Adjusted Base Rates

| | Adjusted Base Rates | | | | | | | | |
|-------------------|---------------------|---------------------|--------------|---------------------|----------------|---------------------|----------------|-------------------|---------------------|
| | Res VMT/DU | Change fr Base Rate | Empl VMT/Job | Change fr Base Rate | Res Bike Share | Change fr Base Rate | Res Walk Share | Res Transit Share | Change fr Base Rate |
| Scenario | | | | | | | | | |
| SACOG2 | 37.7 | -11% | 0.0 | +883% | 13.2% | +13% | 5.1% | 1.5% | -2% |
| Context Area Avg: | 28.9 | | | | 17.3% | | 7.8% | 2.4% | |

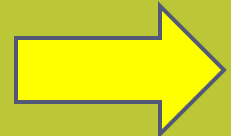
Lastly: The tool produces and reports final estimation & adjustment of travel – for both the “base case” & project “scenario(s)”



5. Next Steps

“Practitioners Panel” - The project team will invite staff of agencies in areas included in the study to provide input via meetings, etc.

Overview of project Tasks & Schedule



Project Tasks & Schedule:

- Task 1 - **Literature Review** – *July 2011 (Fehr & Peers)*
- Task 2a – **“Expert s” Advisory Panel** – *Input re: statistical analysis of land use & travel data for study. (Fehr & Peers)*
- Task 2b **Practitioners’ Panel(s)** – **Meetings** *(dates tbd)*
- Task 3 - **Data Collection** – a. *gather available land use & transportation data in 8 focus regions; obtain geo-coded HH travel survey data; conduct GIS buffer analyses of trip ends. (Recently completed for 7 areas).* b. *Gather forecast land use data for trend & smart growth scenarios. (UCD; F&P)*
- Task 4 - **Develop “Elasticities”** – *Perform statistical analyses of data from Task 3 to estimate land use-travel elasticities for the 8 “focus” regions. Report findings. (F&P)*

Project Tasks & Schedule:

➤ Task 5 – Develop Analysis Modules:

- a. Develop open-source micro-level analysis tool for buffered, parcel, or grid-cell land use data for GIS tools that incorporates the elasticities from Task 4. (SACOG)
- b. Adapt open-source micro-level GIS analysis tool as an iPLACE3S “Module with user interface tailored to current iPLACE3S users. (SACOG)
- c. Adapt micro-level analysis tool as a UPLAN Module with user interface tailored to current users. (UC Davis)
- d. Develop model post-processor using elasticities from Task 4 for use with standard (zonal) travel models (F&P)
- e. Prepare documentation of these tools. (all)

Goal: Complete by March 2012.

Project Tasks & Schedule:

➤ Task 6 - Module Testing, Validation & Calibration

- a. Draft a test plan for the micro-level I-PLACE3S & UPLAN tools; b. Conduct validation testing (SACOG, UCD)
- c. Prepare guidelines on range of land use changes appropriate for evaluation (SACOG, UC Davis).
- d. Draft test plan for the Ds travel model post-processors (Fehr & Peers)
- e. Verify that research-based results are replicated when post processor is applied to each model (SACOG, F&P)
- f. Equip model post-processor, UPLAN, and I-PLACE3S with controls on range of land use changes (Fehr & Peers)
- g. Document test plan, results, guidelines, and calibrated and range-controlled versions of tools. (*all*)

Goal: Complete by mid-2012.

Project Tasks & Schedule:

Task 7 - Documentation, Users' Manuals, Training

- a. Prepare Draft Users' Manuals including memoranda on other Tasks & deliverables (SACOG, UC Davis, F&P)*
- b. Provide time for needed user training (SACOG, UC Davis, F&P)*
- c. Revise Users' Manuals based on feedback received.*
- d. Publish results.***

Goal: Overall project completion – by the end of 2012.

Questions & Answers *(from the “chat box”)*



Closing

- *Thank you for participating in this webinar!*
- *Answers to questions not responded to today will be provided via email.*
- *A link to a recording of this will be available.*
- *With additional questions and/or comments, email Terry Parker, Caltrans coordinator:*
Terry.Parker@dot.ca.gov

